1: DeLand O-4 (No date)1908 NQ17 Mandan NQ17

342 513 are made like tombs, surrounded by skins. These men are always naked, covered only with a buffalo robe. * * * * Their fort 251 is full of caves, in which are stored such articles as grain, food, 436 fat, dressed robes and bear skins. They are well supplied with these; it is the money of the country. The more they have of it 304 the richer they believe themselves to be. They are fond of tattooing, but never more than half of the body is tattoed, both of 285 men and women. They make wicker work very neatly, flat and in baskets.

Pottery. "They make use of earthen pots, which they use like 323 many other nations for cooking their food. They are for the most 261 part great eaters; are eager for feasts. They brought me every day more than twenty dishes of wheat, beans and pumpkins, all cooked. Mr. de la Marque, who did not hate feasts, went to them continually with my children. As I did not go to them my share 141 was sent to me. The men are stout and tall, generally very active, fairly good looking, with a good physiognomy. The women have not the Indian physiognomy. The men indulge in a sort of ball 526 play on the squares and ramparts.

000 "On the evening of the 4th the Sieur Nolant and my son arrived, well satisfied with their journey, having been well received and strongly urged to remain longer. The fort is on the bank of the river, as large again as this; the squares and streets are very fine and clean; their palisade is in the best order and strength; the whole built in the same fashion as the one in which we were. From what they could hear all their forts are alike; who saw one saw all, with this difference, that some were much larger than others. The nearest to the Pananas that the river appeared to go was, according to the compass, southwest by south, by signs given to them; the lower part may go to the sea to the southwest by west. They were often amused by broken talk; not being able to answer questions put to them, they answered something else, for want of understanding. The waters of their rivers come down with great rapidity, having many shoals. The water is not good for drinking, being brakish. We have constantly found from the last mountain almost all the marshes and ponds brakish or sulphurous. What they could understand was that on the lower part of the river there were men like us, who made cloth and linen, were very numerous and had wars with a large part of the Indians. We saw that it was useless to question them, as they

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clination to coalesce. The Mandan and Gros Ventre (or Minnetaree) languages are somewhat alike, and probably of a very distinct common origin; but no resemblance has yet been discovered between either of these and the Aricaree ('Ricaras'). Almost every member of each trib understands the languages of the other tribes, yet he speaks his own most fluently; so it is not an uncommon thing to hear a dialogue carried on in two languages, one person, for instance, questioning in Mandan, and the other answering back in Gros Ventre, and vice versa.

"Many of them understand the Dakota tongue, and use it as a means of intercommunication, and all understand the sign language. So, after all, they have no trouble in making themselves understood by one another. These Indians must have excellent memories and 'good capacity for study;' for it is not uncommon to find persons among them, some even under twenty years of age, who can speak fluently four or five different languages." (p. 17-18.)

As showing the aptness of the Kees and Mandans in working in glass or absidian, Matthews says:

Glass-Work—Beads. "The articles of glass spoken of above are chiefly of two kinds. First, large, globular, or ellipsoidal beads; and, second, flat, irregularly triangular plates or pendants, which are glazed only on one side, and have a hole at the apex. The art of making these deserves more than a mere mention, since it is commonly believed that the aboriginal Americans, even the more civilized races, knew nothing of the manufacture of glass at the time of the Columbian discovery. The very earliest ethnographical account we have of the Aricarees and Mandans shows that they knew how to make glass beads; and there is no doubt that the process employed in 1804 was essentially the same as that employed today." (Here follows the account given by Lewis and Clarke, already set forth herein and quoted by Matthews; after which he resumes:)

Not Glass Product. "This art is now only occasionally practiced in the village, and is mostly confined to the making of the flat triangular pendants. I have heard the process described in much the same way as in the above quotation. From this quotation, however, which is in part ambiguous, the inference might be drawn that the ornaments, when completed consist entirely of

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glass. Such is not the case in those I have seen; on the contrary, they consist of a core of baked earth covered with a thin shell of glass; and they have the appearance of having been perforated before heat was applied. But in the matter of making the holes, the process may have been changed, or there may have been two ways of doing it." (p. 20-21.)

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Rees and Mandans—Glazed Ornaments? "The art of making these ornaments would appear to be old; yet the process as it existed in 1804 was evidently in part recent, since the Indians obtained the glass which they used from the whites. I have been informed by the Indians that in old days the art flourished among the Aricarees as well as among the Mandans; and certainly at the present day the Aricaree women understand it. I had two of the triangular pendants made to order in 1870, by an Aricaree woman, to whom I furished the blue glass necessary. When I gave instructions to have the articles made, I was invited to witness the process, but circumstances prevented me from doing so. One of these pendants was sent to the Smithsonian Institution. It is strange, if true, that these Indians should have obtained their knowledge of this art from the Snake Indians, a ruder and equally remote tribe. It is also strange, and undoubtedly true, that in 1804, as well as now, they did not make their glass, but obtained it ready-made, and merely fused it for their purposes, obtaining it, doubtlessly, from the whites. It is strange that within a few years after glass beads of European manufacture were first introduced among them, and when such beads must have commanded a high price, they should pulverize them and use the powder in making ruder and more unsightly articles after their own design. But it is not probable that they should have learned such an art from civilized people prior to 1804, when they had as yet seen but few whites, and when the whites they had seen were mostly rude Canadian frontiersmen, among whom it is not reasonable to suppose there were any persons versed in glass-making. I have heard Indians say, with uncertainty, that in former times they found glass in the hills, and pounded it for their beads; meaning perhaps that they used natural glass, which may be found where lignite beds have taken fire, and elsewhere on the upper Missouri. In view of all these facts, I have conjectured that they had the art of making glazed earthern ornaments before

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323 the whites came among them; and that when they saw the bril-
301 liantly colored beads of the traders, they conceived the idea of improving their art by using these beads. If they ever possessed the art of making glass de novo, there is no record, tradition, or other evidence of it, that I have been able to find."

Was It Ancient Art. "One of many reasons, though perhaps an insufficient reason, for believing the art to be of no recent origin among them, is that they used the triangular pendants, not as ornaments only, but as evidences of betrothal, as long ago as
[584] the oldest men can remember. When a girl was promised in marriage in her infancy by her parents, as was not infrequently done, one of these pendants was tied to her forelock so as to hang down over her forehead. When the promise was fulfilled, the husband removed the pendant and threw it away." (p. 22-23.)

439 **Inter-Tribal Trade.** "With the nomadic tribes around, they exchanged their agricultural produce for horses, and, recently, for robes. When the Dakotas saw a certain flower (Liatris puncta-
[824] tata) blooming on the prairie, they knew that the corn was ripe, and went to the villages of the farming Indians to trade. From
721 the time they came in sight of the village to the time they disappeared there was a truce. When they had passed beyond the bluffs, they might steal an unguarded pony or lift a scalp, and were in turn liable to be attacked." (p. 27.)

439 **Trade With Pacific Coast—Shells.** "It appears probable that they once carried on trade indirectly with the tribes of the Pacific coast, for they had Dentalium shells similar to those obtained on the Pacific and they prized them so highly that the white traders found it advisable to obtain them for the trade. As late as 1866, ten of these shells, of inferior size, costing the traders only a cent a piece, would buy a superior buffalo robe, and formerly only two or three of the same quality were paid for a robe. Modern traders, with whom the writer had conversed, obtained their shells from eastern importers, and know nothing of the original source of supply. They supposed them to come from the Atlantic coast or the Great Lakes, and called them 'Iroquois shells,' which is probably their corruption of the Chinook 'hyakwa;' but it is possible the reverse is the case.

439 "They also used, and still use, as ornaments, fragments of the
301 **Abalone** shells (one or more species of **Haliotis**) of the Pacific.

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even the few surviving Mandans were driven from their own huts. Subsequently these tribes were again thus afflicted, and from one who was then stationed at Fort Clarke and an eye-witness of the fact, I am informed that suicide was committed by the victims throwing themselves over the bluffs of the river to the rocks below. De Smet states that both the smallpox and cholera created havoc among the northern Indians in 1851." (p. 227.)

The making of glass beads by the Mandans and Aricarees is alluded to by Wheeler, who says:

Glass Beads, Etc. "The Lewis and Clarke narrative for March 16th describes a process for making glass beads known to the Mandans.

"The Indians did not make the glass itself. This they obtained from the whites, but there is evidence that, prior to the appearance of the traders, they used obsidian, or natural glass, for this purpose. Dr. Matthews, as late as 1870, had flat triangular blue glass pendants made to order by an Aricaree woman, he furnishing the glass.

"These people also made unglazed pottery, mats, and baskets, ladles and spoons, from the horns of the Rocky mountain sheep (Ovius Montana) and the buffalo, and from the shoulder-blades of the bison they fashioned the hoes with which they hoed the ground in very early time. Since the whites came, the crude implements of the old days have been mostly supplanted by our household, garden, etc., utensils; but, in 1902, I purchased a fine sheep-horn ladle apparently in daily use still." (p. 228.)

Steinbreuck's Observations. Hon. E. R. Steinbreuck, field officer of the State Historical Society of North Dakota, makes the further statement to the writer, in a letter dated May 24th, 1908, concerning the Mandan deserted villages, and their former habitat, as follows:

Unsolved Problems. "I think it is a difficult and as yet unsolved problem, to write the history of the Mandans, as aborigines of South Dakota. We have the end of the trail, not so the beginning. We don't know for certain where the Mandans came from. The end is in North Dakota and that is also the beginning of the traditions of the present Mandans. Their entire knowledge of their origin is limited to the Heart river region in North Da-

3: Will and Spinden E-5 (1905) 1906
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garters and belts of buffalo hair. But they did make string and willow matting. There is an account of a mat used on the seat before the fire. Henry[1] says that the mat was of small willows of equal size, fastened together by thread of native make passed through each stick about one foot apart. The mats were ten feet long, four feet broad, and the two ends for two and a half feet were raised slanting from the ground and supported by a kind of sofa. Verendrye says they made wicker work very neatly, flat, and in baskets.

The Mandans used snow-shoes which were only about two and a half feet long.[2] For their dyes and paints they made use of the following: red obtained from buffalo-berries, black from sunflowers, and yellow from a kind of moss which came from the Rocky Mountains. Blue, red, black, yellow and white clays were also used.

An indispensable article of the full dress was the fan. These were made from the large plumes of the eagle, hawk, crow, and a number of other birds, depending on the rank of the owner.

The Mandan pipes differed a trifle from those of their neighbors, being less ornate.[3] They were either of stone, black clay, or yellow clay painted black. The stone pipes were obtained mostly from the Dakotas. Pipes with wooden bowls, lined with stone, were also used. The stem was long and round or flat. Catlin describes one pipe as of red steatite (catlinite) with a stem three feet long, half its length wound with braids of porcupine quills. They also had the calumet pipe which will be considered in connection with the ceremonies.

The Mandans and their neighbors the Arikara and Hidatsa made glass beads, an art which they claimed was taught to them by the Snake Indians. They did not make the glass but used glass obtained through the whites. Lewis and Clarke[4] give a short account of the manufacture of beads which is exceedingly interesting. It may be thus summarized. The secret is known only to a few. Glass of several colors is pounded fine, each color separate; this is washed in several waters until the glass stops staining the water. They then take an

[1] Op. cit., vol. I, p. 340.
[2] Ibid., p. 301.
[3] Maximilian: p. 390.
[4] March 16, 1805.

3: Will and Spinden E-5 (1905) 1906
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323 earthen pot of some three gallons, put a platter in the mouth of the pot which has a nitch on its edge through which to watch the beads. Then some well seasoned clay, mixed with sand and tempered with water till of the consistency of dough, is taken, and from it are made a number of little sticks of the size of the hole desired in the bead. These are heated to a red heat and cooled again. The pot is also heated to clean it. Then small balls of the clay are made to serve as pedestals for the beads. The powdered glass, enough for one bead, is dipped into the palm of the hand with a little wooden paddle, where it is paddled into an oblong form, the clay stick is then laid across it and the glass is wound around the clay. The whole is then rolled in the hand till regular. To put in other colors the other end of the paddle stick, which is sharp, is used to make a hole which is then filled with another colored glass. A hole is then made in the center of each pedestal and a bead stuck in it. Then the platter is put in the coals and the pot is inverted over it; dry wood is placed about the whole and burnt; the beads are watched through the hole in the bottom of the pot, as overheating is harmful. When the beads are whitish red and grow pointed, they are taken off. The clay center is picked out with an awl.

415 323 Wooden bowls were used to some extent by the Mandans.[1] They also made very excellent pottery which was mentioned by nearly all their visitors. Verendrye says they had earthen pots which they used for cooking their food. Catlin speaks of earthenware dishes made in great quantities by the women and modelled into a thousand forms. He says they were of a tough, black clay, very hard, and were baked in prepared kilns. Henry[2] says they used large earthen pots of clay which was plentiful near the village. The pots held from one quart to five gallons. Nothing greasy was cooked in them as they claimed it cracked them. The bottoms of the pots were convex and they were set in the fire in a hole in the ashes. Coils of bois blanc fibres with a hole in the center, and of different sizes, were used to stand the pots on when off the fire. Some pots had two ears or handles.

[1] Catlin: vol. I, p. 114.

[2] Op. cit., vol. I, p. 228.

3:Will and Spinden E-5 (1905) 1906
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Maximilian[1] also gives a description of the pottery;—"They make pots of different shapes and sizes. The clay is slate-colored and turns a yellowish red in the fire. It is mixed with powdered granite which has been burnt. A large round stone is stuck into the clay which is prevented from spreading sideways. It is polished with a piece of poplar bark. When shaped, it is filled with dry chips, and also surrounded by them on the outside, then burned. They use no enamel on the pots." This pottery has not been made for a number of years, and there are only a few whole samples of the cruder sort in collections.

AGRICULTURE:—The Mandans were, above all, an agricultural people, far more so than any of their neighbors. They have a tradition of having taught the Hidatsa how to cultivate the soil, and even the Arikara, who are said by some to have taught the Mandans, were somewhat inferior to the latter in the pursuit of agriculture. The Mandans were dependent on the soil for nearly all of their food, according to Verendrye, in 1738. By the time Lewis and Clarke came, however, they were about on the dividing line between being a hunting and an agricultural nation. They were not the hunters that their neighbors the Hidatsa were, because they were too weak in numbers to venture on long hunting trips. The agricultural ceremonies and dances shared honor with those of hunting, and the Old Woman Who Never Dies, or the Corn Mother, was an important personage in the ceremonial life of the people.

The land about the Mandan villages, smooth river bottoms and very fertile, was always extremely easy to work, and required but the crudest implements. Consequently the cultivation was fairly extensive. Maximilian says that each family cultivated three fields of four or five acres each, which were never fenced. The farms were shifted to a new place when the old area began to yield smaller crops. There seems to have been no attempt at fertilization, and it was hardly necessary in view of the great abundance of good land. Henry[2] gives an animated picture of the Mandan farming operations:

"We passed extensive fields of corn, beans, squashes and

[1] Op. cit., p. 386.

[2] Op. cit., vol. I, pp. 343 et seq.

3; Will and Spinden E-5 (1905) 1906
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Potter's clay was commonly met with in small quantities. It was almost black, and very fine grained. Sometimes the clay was found pure, and sometimes it had already been mixed with coarse sand, made by burning and pulverizing granite.

SHELL:—The shell remains in this village site were scanty. No layers or heaps of shells were found in any of the excavations, and none were in evidence in the dump. Thus it is to be presumed that shell-fish were comparatively little used for food. A

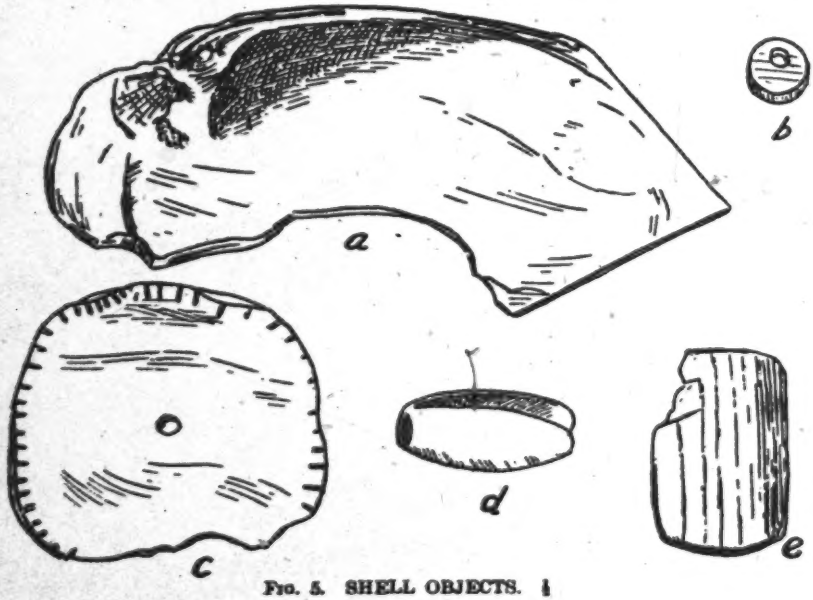

FIG. 5. SHELL OBJECTS. ½

few small shells were found in the mounds, and a few shells of the fresh water mussel, or Unio, were found scattered widely among the refuse in the mounds, caches and house rings. Some of the latter were also found in a house ring at the Ward site.

The Unio shells furnished easily worked material for useful and ornamental objects, and it is somewhat strange that more of these were not found. Fig. 5, *a*, shows an implement made by pointing one end of a unio shell. An implement very similar to this is said[1] to have been used in smoothing and shaping pottery.

[1] Notes on Canadian Pottery by F. W. Waugh: 13th Archaeological Report of the Minister of Education, Ontario.

3:Will and Spinden E-5 (1905) 1906
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X 172 321 form the handle. The only sign of wear is on the beak of the bird's head. The use of this object is uncertain, but it is possible that it was part of the paraphernalia of a medicine man.

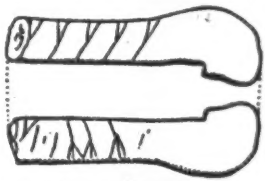

FIG. 12. BONE OBJECT WITH INCISED DECORATION. ½

Fig. 12 represents a portion of a well-made bone instrument which may have had a use similar to the above. This object is decorated with incised markings.

Several pieces of carved bones, representing various animal and bird heads, are reported to have been found in the various village sites, but no opportunity was given to inspect them.

X 172 ●323 171 POTTERY:—The pottery of the Mandans, judging by the fragments found at the different village sites, is one of the most interesting features of their culture. It is an excellent ware, thin, well-made, and with a characteristic development of form and ornament. The excellence of the pottery is the more remarkable when it is called to mind that the Mandans were at the northwestern limits of the pottery area. North of them, indeed, on the Mouse River, some crude pottery of uncertain origin is found. South of them, the Arikara and Omaha practised the ceramic art, being influenced in it by the pottery makers of the Mississippi valley. East of them, for several hundred miles, lived nomadic tribes who were apparently unacquainted with pottery, while the pottery of Wisconsin was too remote to exert an influence.

X 172 323 Mandan pottery is mentioned by almost all the early explorers, but no one gives an extended description of it, or a sufficiently detailed account of the method of manufacture. None of this pottery has been made for many years by the survivors of the tribe, but a knowledge of it can be gathered from a study of the fragments which have been preserved.

The pottery is, for the most part, a black ware, although sometimes it turned dull orange or red from firing. The un-

3: Will and Spinden E-5 (1905) 1906
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baked clay, small quantities of which were found in the mounds is bluish black in color, fine grained, and tough. It was tempered with coarse sand made by burning and pulverizing granite bowlders. Occasionally, the pots seem to have been painted with red pigment on the inside, but the use of a clay size is extremely doubtful.

The method employed in making pottery is not disclosed very fully by the fragments. Still something can be added to Maximilian's account given on page 117 of this paper.

Comparatively few of the pottery fragments show much of this evidence of the method of manufacture. The pots appear to have been smoothed and often slightly polished with a stone or other implement. The surface of some of the potsherds is scratched as if a handful of dry grass had been used to smooth them.

The vessels had a considerable range in size and shape; the largest had a capacity of four or five gallons, while toy pots,

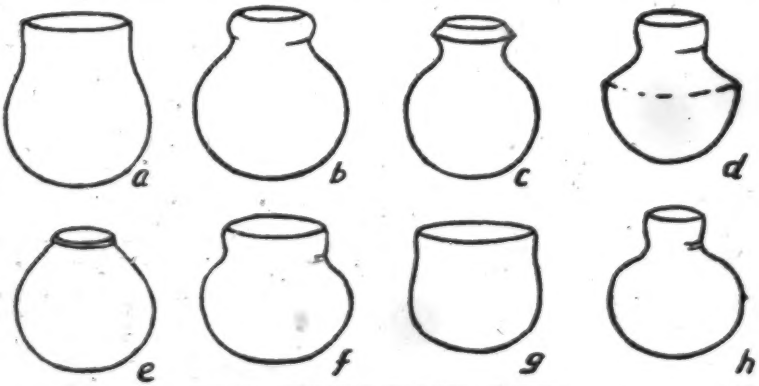

FIG. 13. TYPICAL SHAPES OF POTS.

two inches in diameter, were sometimes made. Fig. 13 illustrates some of the more common shapes, as reconstructed from fragments. There seems to have been no attempt to maintain a series of types. No two pots are exactly alike in form or ornament, and all intermediate shapes between the ones given are found. This variation did not lead to unusual or grotesque forms. Fig. 13, *d*, shows about the extreme of individual development. The bottoms of the pots were rounded, the

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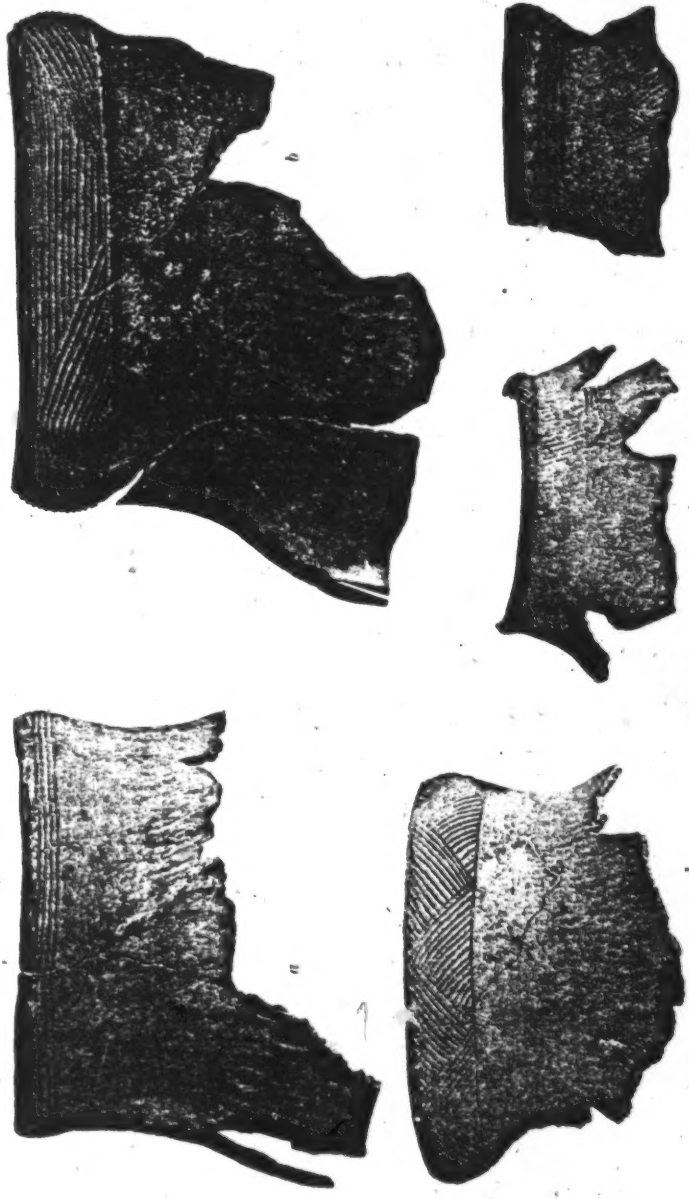

LARGE FRAGMENTS OF MANDAN POTS.

[P. 174 (A)]

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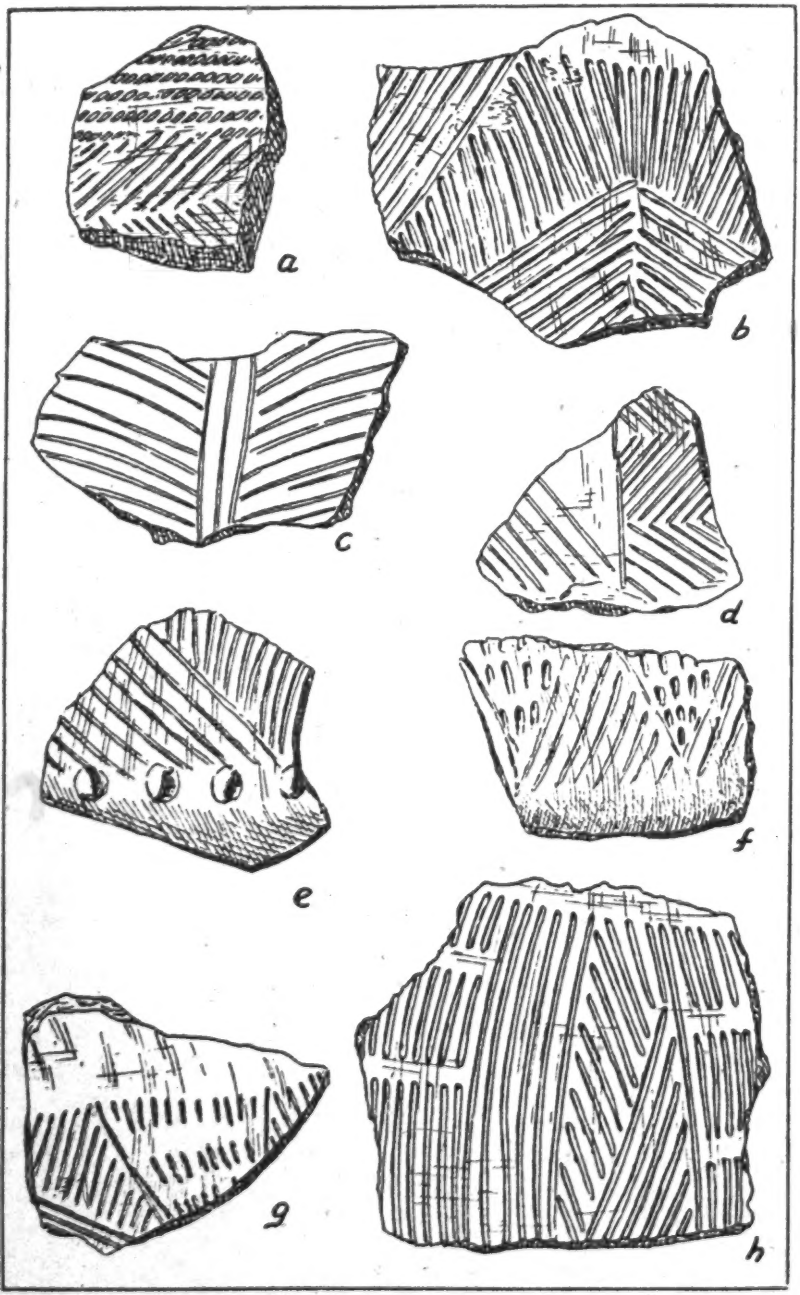

INCISED POTTERY FRAGMENTS.

[P. 174 (B)]

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mouths wide, and the short neck more or less constricted. The profile of the rim is characterized by a reverse curve. Often these profiles have very fine lines and present much diversity.

Fig. 13, *a*, shows the most common and crudest form of pots, such as were used for the coarsest work. Sometimes these rude pots were entirely undecorated, but usually they had three or four encircling cord marks around the rims or shoulders. Fig. 13, *b*, *c*, *d*, and *f*, present more finely shaped pots which show the short neck and the reverse curve profile. In Fig. 13, *h*, the form approaches that of a bottle. Fig. 13, *e*, shows a form of pot in which the neck is absent. The mouth is smaller than usual, in comparison with the largest diameter of the pot. Fig. 13, *g*, represents the bowl form, which was rather common. No pottery of the platter form was found, although it may have existed.

The ornamentation of Mandan pottery is interesting and characteristic. It may be roughly divided under two heads incised, and cord-marked. Incised design is neither so uniformly nor so characteristically developed as cord-mark design. In few cases can a unit of incised design be extracted. Cord-mark design is applied to the rim and to the neck of the pot, while incised design is applied almost entirely to the shoulder. For this reason incised design is usually found in combination with cord marking.

In incised design the incising consists of long and short lines such as could be made by a shell moulding tool like that shown in Fig. 5, *a*, or by some other pointed implement. These lines are often very evenly made, and seem to be comb markings. But examination shows that the lines are not exactly parallel as they would be if made by a toothed instrument (Plate XXXVIII, fig. *h*). The most common pattern of incised design is that in which the lines are arranged to form a zigzag around the shoulder of the pot. A fine example of this is seen in Fig. 16, and a freer use of the same pattern is shown in Plate XXXVII, fig. *e*. Often parallel lines are drawn, as a sort of cross-hatching, in irregular areas (Plate XXXVIII, figs. *b*, *g*, *h*). In the first of these, the suggestion of an elaborate design is destroyed by the evidence of other fragments from the same

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pot. The herring-bone pattern is found in several fragments (Plate XXXVIII, figs. *a*, *d*, and in text, Fig. 14). The pattern shown in Plate XXXVIII, fig. *c*, is one in which the circumference of the pot was divided into several sections by a series of vertical lines, and the areas thus formed were decorated by curved cross lines. Perhaps the most regular of incised line

FIG. 14. INCISED POTTERY FRAGMENT SHOWING HERRING-BONE PATTERN.

patterns is that shown in Plate XXXVIII, fig. *f*. Here a band around the shoulder of the pot is divided into triangular areas by a zigzag line, then all the triangles pointing down are filled with short dashes, while the alternate ones, pointing up, are marked with oblique lines. Plate XXXVIII, fig. *g*, shows a less orderly form of the triangular area decorated with short lines. Figs. 14 and 15 show undecorated areas in the midst of decorated ones. In Fig. 15 the middle zone of the pot seems to have been divided into rectangles which were further divided by diagonals. The upper and lower quarters, thus made, were decorated by diagonal lines, the side areas remaining untouched. From the rest of the design, given on the fragment, it is evident that this idea was not carried out in an orderly fashion. Fig. 16 shows a fragment having a row of indentations round the body of the vessel.

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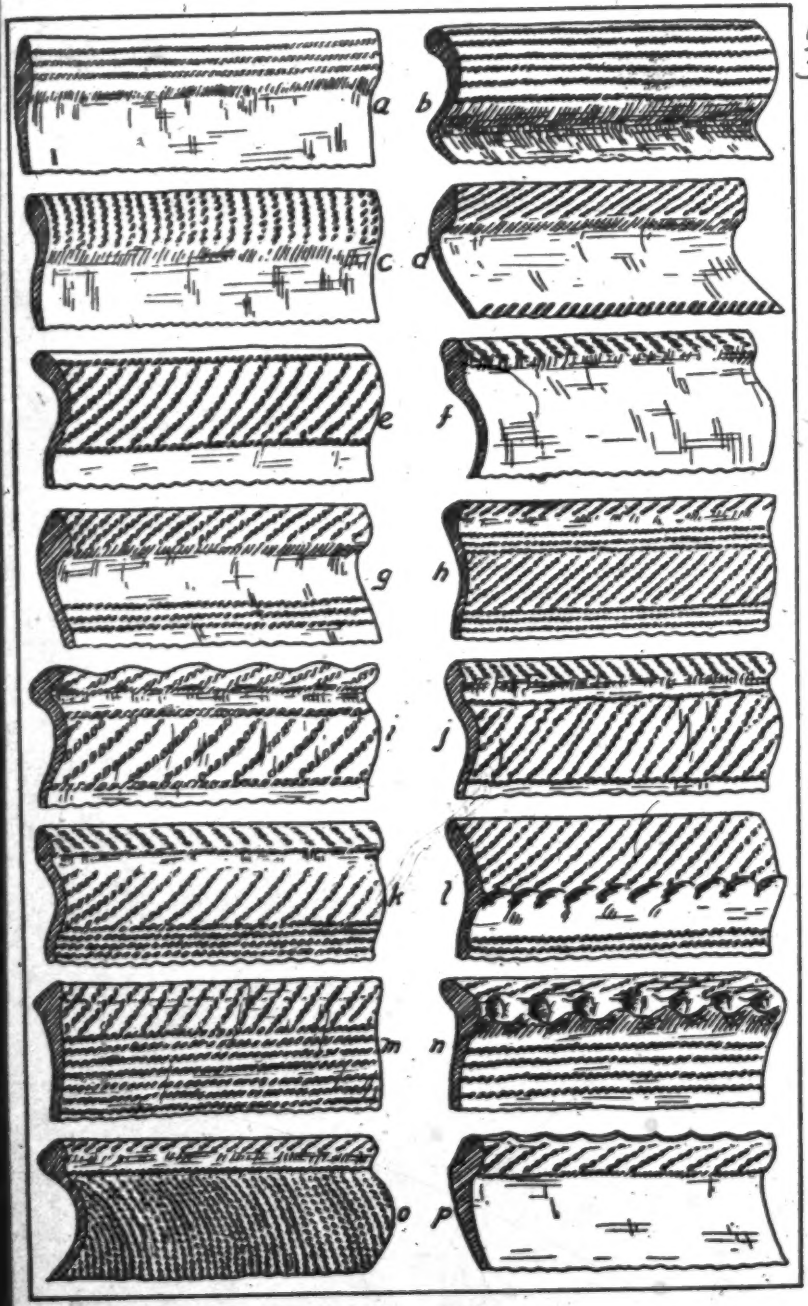

POTTERY ORNAMENTATION.

[P. 176 (A)]

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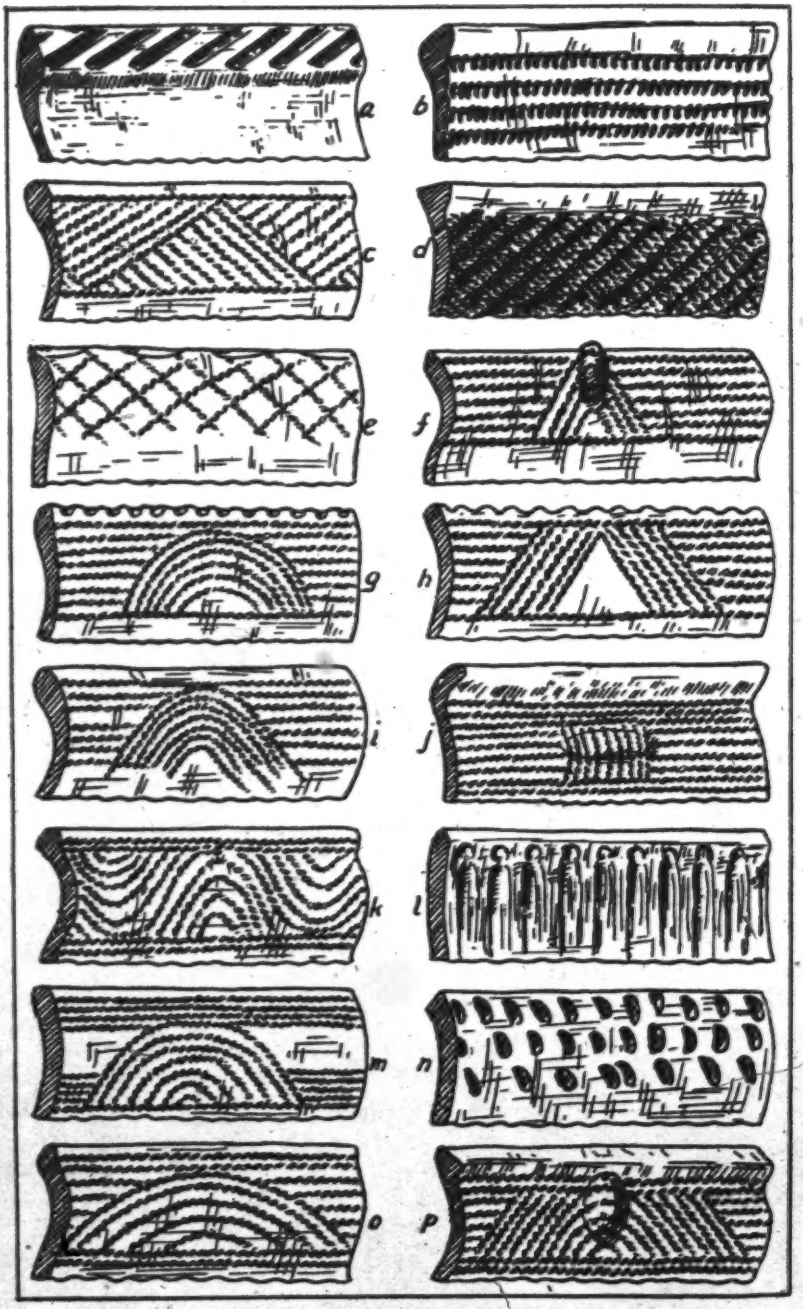

POTTERY ORNAMENTATION.

[P. 176 (B)]

3:Will and Spinden E-5 (1905) 1906
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●323 Thus it is seen, that while there is considerable variety in incised design, it is not developed in an orderly manner. It is put on freely and at haphazard.

Cord-mark design, on the other hand, shows much neatness, order and precision. It also shows amazing variety within certain

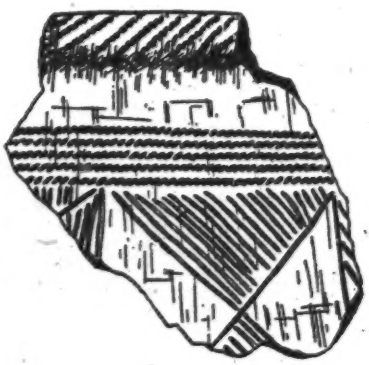

FIG. 15.

FIG. 16.

POTTERY FRAGMENTS SHOWING THE COMBINATION OF CORD MARKED AND INCISED DESIGN.

narrow limits. Rectilinear designs preponderate and curvilinear forms occur only in conjunction with them. Sinuous lines were not found, except in one pattern (Plate XL, fig. *k*) where the semicircular arcs reverse.

Plates XXXIX and XL show the principal variations of cord-marked patterns. The cord-marked designs extend in bands around the rim of the pot. The bands are made up either of simple encircling lines (Plate XXXIX, figs. *a* and *b*) or of short, diagonal lines, often bounded by the encircling lines. Some of these patterns show much neatness in covering up the ends of the diagonal lines by the horizontal lines, (Plate XXXIX, figs. *e*, *h*, *i*, etc.) All the combinations of direction of the diagonal lines are shown in the different potsherds. No two patterns are found to be exactly alike, the number of the cord marks varying greatly, as also the form of the profile to which the design is fitted. Some of the designs are very neatly put on, while others are carelessly done. The size of the cord marks vary,—some of the string was evidently very fine, while some was quite coarse.

3: Will and Spinden E-5 (1905) 1906
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The designs in which triangles, rectangles and arcs are inserted are so arranged that these insertions come at regular points on the circumference. Usually there are four of these points (Plate XL, figs. *f*, *g*, *h*, *i*, *j*, *m*, *o*, *p*).

Besides the cord marks, the ornamentation is often enhanced by scalloping the rim as in Plate XXXIX, fig. *p*, or by rendering it wavy as in Plate XXXIX, fig. *i* and Plate XL, figs. *e*, *g*, *h*. Sometimes a sharp angle is decorated with indentations, as in Plate XXXIX, fig. *n*. Sometimes the underside of a band of cord markings is bounded by a series of finger impressions, as in Plate XXXIX, fig. *l*. Knobs are frequently used in the center of the triangular or arc-like insertions, as in Plate XL, figs. *f*, *j*, *p*.

In Plate XL, fig. *a*, is a design made by impressing a small stem into the soft clay in the same manner as the cord impressions were made. Plate XL, fig. *b*, shows a design apparently made by impressing a small stick wound with a skin thong. It may, however, have been made by a string of shell beads. Plate XL, fig. *l*, shows a rough pattern made by a series of small holes, directly under which is an imprint, perhaps that of the paddle stick used in toughening the clay. Plate XL, fig. *n*, is a crude ornamentation made by the prints of the the thumb nail.

Only one example of textile impression is found, that shown in Plate XL, fig. *d*. The piece of pottery which shows this was picked up near the town of Mandan. The fabric from the imprint, seems to have been made of cords which are woven around a series of heavy cords or withes.

As before mentioned, an oval stone, which was evidently pecked into shape, was found in one of the house sites. This was probably one of the kind on which the bottoms were moulded. The pot was apparently beaten with paddle sticks, of various kinds, to toughen the clay. Plate XLI reproduces several potsherds which show markings. Sometimes the fragments show crisscross markings, as if a paddle covered with matting were used (figs. *f*, *g*, *i*, *m*, *n* and *o*). Sometimes fine check markings (figs. *c*, *d* and *e*) suggest that an incised paddle was used. More frequently, however, the markings are such as to suggest the use of a small spatulate stick (figs. *h*, *j*, *k*, *l*, *p* and *q*). The

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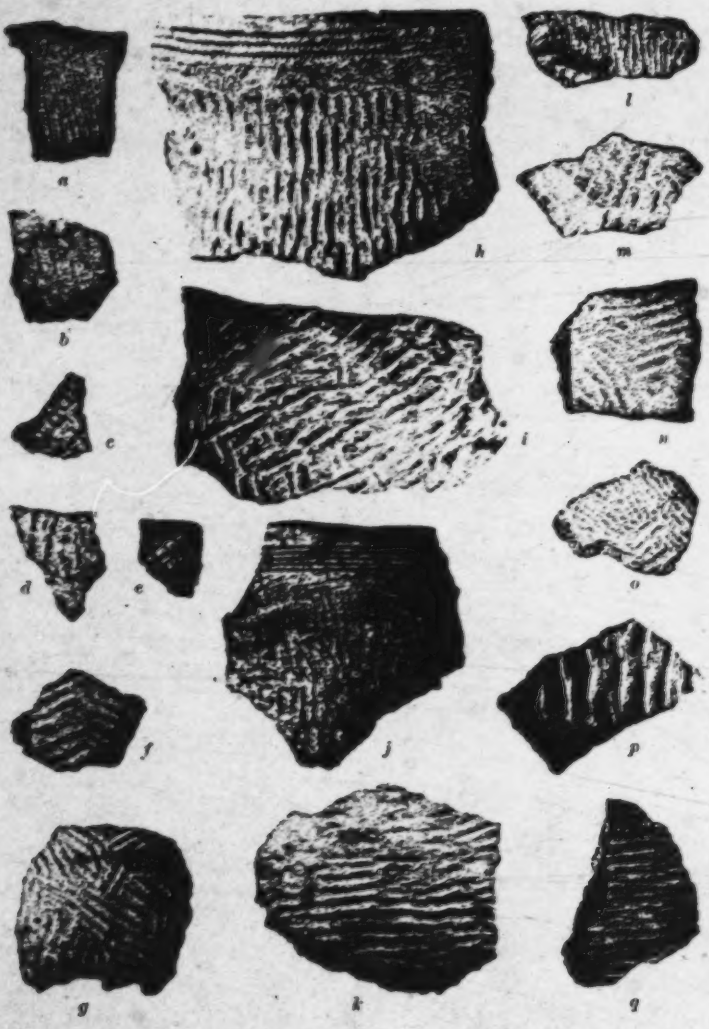

POTSHERDS SHOWING PADDLE AND OTHER MARKINGS.

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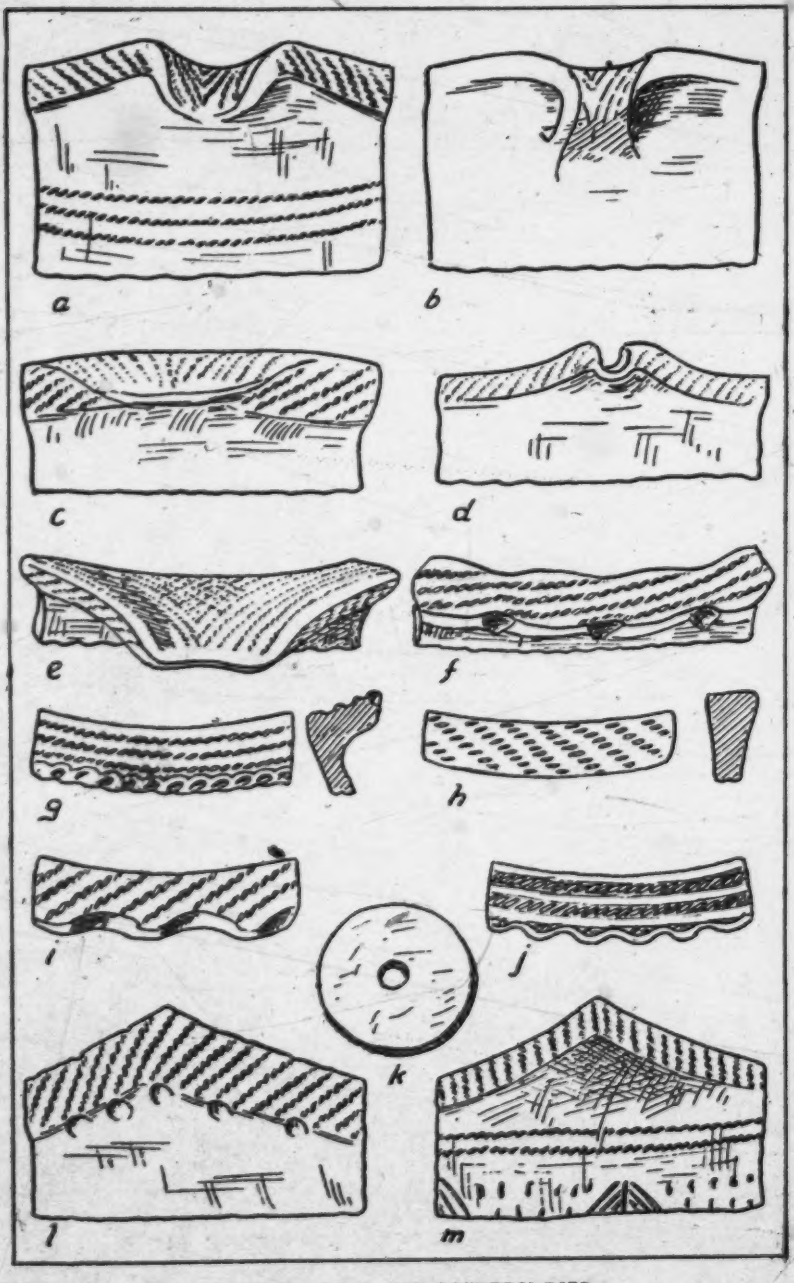

POTTERY RIMS AND POTTERY DISC.

[P. 178 (B)]

3:Will and Spinden E-5 (1905) 1906
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markings, when roughly parallel, are either horizontal or vertical. Usually the markings around the necks of the pots are vertical.

Sometimes the upper surface of the rim was impressed with cords or otherwise ornamented. Plate XLII, figs. *f* to *j*, gives representations of the different modes. Another kind of ornamentation, which was only slightly employed, was to form the edge of the pot into a series of broad serrations or crescent-shaped depressions. Apparently there were four or more cusps to the circumference. Examples of the cusps are shown in Plate XLII, figs. *l* and *m*. In this feature the Mandan pottery closely resembles the pottery around the Great Lakes.

Many of the Mandan pots were provided with ears, lugs or spouts, the last evidently used to assist in pouring (Plate XLII, figs. *a* and *e*). A lug is shown in Plate XLII, fig. *b*. Sometimes the ear or lug may have been used only as a detail of ornamentation. Plate XLII, fig. *c*, gives a case in which the presence of the lug is disclosed by the cord marks. Plate XLII, fig. *d*, shows a peculiar spout-like opening which seems too small to have served any useful purpose.

Two or three fragments of pottery showing a perforation were found. The perforation was probably to enable some break to be mended.

No pipes made of pottery were found. The only other article of pottery, besides the potsherds, was the perforated disc shown in Plate XLII, fig. *k*. This object is about an inch in diameter.

VEGETABLE REMAINS: — The materials of vegetable origin in the excavations were nearly all charred and consequently many points about them cannot be considered. However, there are a number of interesting details which coincide as far as they go with historical information concerning the Mandan agriculture. The actual remains of vegetables found were those of corn, beans, squash or pumpkins. The seeds of sunflowers and small black seeds of a sort of pig-weed (*Chenopodium sp.*) were also found.

The corn remains were mostly of cobs, from which the grain had been cut off, leaving only an occasional kernel. One or two pieces of ears with the kernels and part of the husk intact

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262 which is so favourite a dish among the northern Indians, is not much in use among the Mandans. Their only drink is water, for they are unacquainted with the method of preparing fermented liquors. They did not obtain any spirits, either from the American Fur Company, or the agents [273] of Messrs. Soublette and Campbell; hence an intoxicated person is scarcely ever seen. They are extremely fond of sugar, and likewise of salt, which they procure from their lakes, and, if the supply is insufficient, purchase from the Whites. They are likewise fond of coffee and tea, well sweetened. It has been affirmed, that several North American nations, especially those which speak the Algonquin language, are cannibals, and more particularly the Chippeways and the Potawatomis; but I found no trace of this unnatural custom among the Missouri nations.

592 Two, and sometimes three, families usually live together in an Indian hut, commonly the
595 father, with his married sons or sons-in-law. Polygamy is everywhere practised, and the number
596 of wives differs; however, they have very seldom more than four, and, in general, only one. The women are very skilful in various kinds of work, particularly in dyeing and painting the buffalo
386 robes. They extract a red colour from the roots of the savoyenne, or from buffalo berries; yel-
824 low from a lichen of the Rocky Mountains; black from helianthus, as well as from a black stone
439 or clay; blue and green they extract from European substances. Among the Mandans, Manitaries, and Arikkaras, the women, as Lewis and Clarke relate, manufacture beads from coloured glass. They powder those which they have obtained from the traders, and mould them into different shapes. This custom is, however, no longer common. The dyeing of the skins, of
● 323 which many travellers have spoken, employs a great portion of the women's time. These three nations understand the manufacture of earthen pots and vessels, of various forms and sizes. The clay is of a dark slate colour, and burns a yellowish-red, very similar to what is seen in the burnt tops of the Missouri hills. This clay is mixed with flint or granite, reduced to powder by the action of fire. The workwoman forms the hollow inside of the vessel by means of a round stone which she holds in her hand, while she works and smooths the outside with a piece of poplar bark. When the pot is made, it is filled and surrounded with dry shavings, and then burnt,
501 when it is ready for use. They know nothing of glazing. With respect to their boats, the North Americans are far more expert than the Brazilians, Patagonians, and other South Americans, who live on the banks of rivers, and yet have contrived no means to pass them. The Chippeways and other northern nations have handsome vessels of birch bark; the Esquimaux makes his kiack, which is curiously covered with seal skin; and on the Missouri, especially among the Mandans, there are boats of buffalo skin, which are represented in the plates accompanying this work. They are very light, of a circular form, stretched on a frame of several pieces of wood crossing each other, and may be carried on the shoulder of a single individual.

584 If a young Indian desires to marry, and has obtained the consent of the girl, he endeavours to procure that of her father; when he is certain of this, he brings two, three, nay, even eight or

10: Neill H4(no date) 1884 NQ17 Mandan NQ17

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formed by the women in the morning.[1] Their sweet corn and beans are boiled whole; they make use of large earthen pots of their own manufacture, made of black clay, of which they have plenty near their villages. They make them of different sizes, from five gallons to a quart. In these vessels is never anything of a greasy nature.[1] * * * * * The bottoms of the pots are of an oblong shape; it therefore requires much care to keep them from upsetting, for which purpose when they are put to the fire a hole is made in the ashes to secure and prop them erect, and when taken away they are placed upon a sort of mat made of the fibers of the bois blanc; these coils or rugs are made of different sizes, according to the dimensions of the several pots, which keeps them firm and secure. Some of these pots are provided with two cones, or handles.[1] * *

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Baptiste La France made his appearance here. This man had left the Prairie la Souris [Mouse River] with a small assortment of goods for the purpose of trading, equipped by the Hudson Bay Company. He now resides upon the south side of the river, at the great Mandane village,* and hearing of the arrival of white people, he came over to us. He now informed the chief, Black Cat, who his guests were and the cause of our visit, which was mere curiosity. [The chief] instantly retired to his family hut and brought out his flag, which was given him in 1804–5; they alsogave him a silver medal, and the same articles were also given to the principal chief of each of the other villages, also several very useful utensils were left amongst them.† I saw the remains of an excellent large corn mill, which the foolish fellows had demolished on purpose to barb their arrows; the largest piece of it which they could not break nor work up into any weapon they have now fixed to a wooden handle, and make use of it to pound marrow bones, to make grease."

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We were now desirous of crossing the river, therefore sent off La France to engage people of the opposite village to come over for us.[2] * * * * * * * We were now informed that eight canoes were in waiting for us, from the opposite side, and the same number of young men had come over to assist in crossing our horses.[2] * * * * On our going over to the war side we found the chief of the Great Mandan village, Le Gros Blanc. He was waiting with his own canoe to ferry over Mr. Chaboillez and me. He appeared very

†To each chief, Lewis and Clarke presented a medal, a flag, and a uniform coat. In the narrative of the expedition is the following sentence: "A variety of other presents were distributed, but none seemed to give them more satisfaction than the iron corn mill, which we gave to the Mandans."

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†The Mandans, about 1760, were settled on the banks of the Missouri, eighty miles below, seven villages on the west and two on the east side of the river. The two villages were reduced by small-pox, and moved up the river and settled a village near the Receivers, and afterwards the people of the other village joined them. In 1796 they were in two villages at the points where Henry found them, on opposite sides of Missouri, about three miles apart.

[1] [Category 116, p. 328.-A.] [2] [Category 116, p. 328.-A]